Graduate School of System Design and Management

KEIO UNIVERSITY

2011 Admission Application, Period I

Essay-type Examination

[Essay Subject]

Following the shut-down of nuclear power plants in Fukushima prefecture, there are risks of large-scale blackouts this summer within Tokyo Electric Power Company's electric grid. The following Figures 1 and 2 are publicly available data from the Mitsubishi Research Institute. According to this data, electricity demand is expected to fall this year due to various countermeasures taken by industry and other users.

Figure 1 represents changes in electricity demand over time during the day of maximum demand last year. The graph on the left classifies electricity demand into those of "industry", "business" and "household" and indicates how much each sector contributes to total demand. The graph on the right breaks down the components of "household" electricity demand, classifying them into "water heater", "kitchen appliances", "washing machine", "television", "air-conditioner", "refrigerator", and "other" usages. Last year's peak power demand was at 59.99 million kW. Figure 2 illustrates fluctuations in this year's predicted electricity demand on the day of maximum demand. According to this figure, electricity demand is expected to generally fall for the day of maximum demand compared to the previous year as a result of various countermeasures. This year's peak power demand on the day of maximum demand is expected to fall to 52 million kW and electricity demand for households is expected to fall by 10 per cent during the peak period.

In order to reduce the risks of a major blackout, propose original <u>measures</u> <u>which the government should implement</u> to encourage savings in usage of electricity for households. Write a 50-word summary of your idea and further explain in detail these measures within 400 words.



Figure 1 Electricity demand on day of maximum demand last year



Figure 2 Expected electricity demand on maximum demand day this year Source: Mitsubishi Research Institute "In order to avoid blackouts this summer"